**Amendments to the Specification:**

Please replace the paragraph at lines 22-30 of page 3 with the following amended paragraph:

An oscillation of a ~~polarisation~~ polarization component in the light beam reflected from the article being processed is detected as the etch or deposition progresses, which oscillation is derived substantially from anomalous reflection or Rayleigh resonance at the feature arrangement resulting from the illumination. The oscillation is used to detect or predict the desired endpoint or monitor the progress in real time of the etch or deposition.

Please replace the paragraph at line 12, page 4 to line 15, page 5 with the following amended paragraph:

From another aspect, the present invention provides apparatus for use in a semiconductor manufacturing process, the apparatus comprising:

a vacuum enclosure;

a workpiece location within the enclosure for locating a semiconductor workpiece to be processed to produce a structure having a small feature size, said semiconductor workpiece having an ordered feature arrangement having a feature size of the same order as the structure to be produced and being arranged in a regular pattern having a given feature spacing or a set of feature spacings;

a spectrally narrow illumination source producing light at one or more wavelengths within 30% of a whole number of wavelengths of a size equal to the projection on a plane normal to the illumination beam of said feature spacing or feature spacings;

optical projection means cooperating with the light source to produce an optical probe measurement beam directed to said workpiece location;

optical detection means arranged to detect an oscillation of a ~~polarisation~~ polarization component in the light beam reflected from the article being processed which is derived substantially from anomalous reflection or Rayleigh Resonance at the feature arrangement resulting from the illumination; and

data processing means arranged to use the oscillation to detect or predict the desired endpoint or monitor the progress in real time of the etch or deposition.

Please replace the paragraph at lines 8-27 on page 8 with the following amended paragraph:

Proper choice of wavelength involves consideration of the structure dimension, its orientation with respect to the ~~polarisation~~ polarization planes of the probe beam, and consideration of its spacing and repeat to the structures surrounding it. If mathematical analysis does not yield a suitable wavelength choice using the repetition of structures present naturally (that is, arising from the desired structures design) on the substrate, then the invention provides for a specific test structure to be placed on the substrate with a repetitive structure which can be easily analysed. Such test structures can conveniently be placed in the scribe lines conventionally present on semiconductor wafers. If a test structure is used, it is selected to have a geometry which simultaneously meets the requirements of optimising the coupling to the structure at a feature size that is fully representative of the feature size to be monitored during the thin film etch or deposition process.

Please replace the paragraph at line 29, page 8 to line 20, page 9 with the following amended lines

This invention exploits these coupling effects to provide measurement during the etch or deposition process. The mask (if used) and substrate materials are opaque to the probe wavelength which is chosen to be close to the separation of the features as projected onto the plane normal to the incident beam; 'close' in this context is taken to be within 30%. Under these conditions the feature size itself can be as small as 1/10 of the illuminating probe wavelength. A cooperative effect of the illuminating radiation governed by the separation of the features being equal or close to the wavelength or wavelengths of the illuminating probe results in an interference reflection signal which is modulated by the etch depth. This effect predominantly interacts with only one of the ~~polarisation~~ polarization components of the illumination, and by separating the reflected beam into its ~~polarisation~~ polarization components considerable improvement in signal quality can be obtained by referencing one ~~polarisation~~ polarization mode to the others. This feature can also be used to remove undesirable modulation of the detected signal by etch of the mask rather than etch of the feature which it is desired to detect.

Please replace the paragraph at lines 12-20 on page 13 with the following amended paragraph:

As discussed above, the detector 62 has the function of comparing one ~~polarisation~~ polarization in the reflected beam at right angles to the plane of the wafer with the cross ~~polarisation~~ polarization. In the conditions described, there is a cooperative effect known as 'anomalous reflection' or 'Rayleigh Resonance' and the reflection for the one ~~polarisation~~ polarization undergoes oscillations with the oscillation representing the depth of the etch.